NOVEMBER 1961



**AMATEUR** AMATEUR

AMATEUR

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RADIO



Senator Hannan (top centre) opening the Twelfth Victorian State Convention. He is surrounded by scenes taken at Ferny Creek Picnic Ground. See story, page 19.

**RADIO** RADIO RADIO **RADIO RADIO** RADIO

AMATEUR RADIO

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	8	upersea	1 Pape	T	vne:	
0.005		600v.	Lape			F. 600v
		600v.				200v.
		1000v.		0.01	5 µF	. 400v.
0.0047	μF	. 400v.		0.00	1 µF	. 1000v
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5/- 5a£1 9003 7/6 3a £1 5/- 5a £1 7/6 3a £1 AV11 2/11 2/- 10 a £1 EA50 5/- 5a£1 5/- 5a£1 6G8G 17/6 10/-EF39 5/- 5a £1 QE04/10 15/-6K8G 20/-QV04/7 15/-7/6 3a £1 5/- 5a £1 RI.18 7/6 3a£1 UL41 7/6 3a£1

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All Amateurs are urred to keep these frequencies clear during, and for a period of 15 minutes after, the official Breadcasts.

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# AMATEUR RADIO

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### EDITORIAL

### MORSE CODE AND THE LIMITED LICENCE

From time to time the same queson comes up: "Why do we have a Morse Code requirement in these days of advanced techniques?"

Ignoring the pros and cons, the Regulations laid down by the Inter-national Telecommunication and Radio Conferences are quite clear in this regard concerning stations in the Amateur Service. Regulation 1003 3 (1) states "Any person opera-ting the apparatus in an amateur station must have proved that he is able to transmit, and to receive by ear, texts in Morse Code signals. Administrations concerned may, however, waive this requirement in the ever, waive this requirement in the case of stations making use exclusively of frequencies above 1,000 (one thousand) Mc." Our authorities, in their wisdom, varied the requirement in respect to 1,000 Mc, in the conditions laid down for our Limited Licence, by making 144 Mc. the frequency limit.

Regulation 1006 5 (1) under Article 42 is also significant. It reads "All the general rules of the Convention 

45 1: "Radio stations shall be obliged to accept, with absolute priority, distress calls and messages regardless of their origin, to reply in the same manner to such messages, and immediately to take such action in regard thereto as may be required", and we have one logical reason for the Morse Code requirement,

When war commenced in 1939, the Amateur's ability as an operator was very quickly recognised by the var-ious Armed Forces. In the early months of the war, the loading of traffic increased much more rapidly than the facilities to train operators. It was during this time that Amateurs literally came to the rescue and manned watches with the minimum of training required to make them familiar with procedure. They were manning circuits where in most cases, the operator at the other end had passed a course of intensive training where the requirements were training where the requirements were much higher than the Amateur Oper-ator's Certificate of Proficiency. He did the job because he had not been content to rest on his laurels after getting his ticket. He lived up to the traditions of the Amateur Ser-vice: A service of self training, intercommunications and technical in-vestigations carried on by Amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Although many sound reasons could be advanced for eliminating the present Morse Code requirement. while existing regulations are in force we are required to abide by them. At the same time, newcomers to our ranks, by maintaining this tradition and becoming fully conversant with all the techniques, will get far greater satisfaction from participating in the Amateur Service and meeting other members on common ground.

W.I.A. FEDERAL EXECUTIVE.

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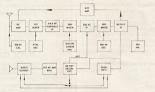
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A new "front end" utilises band-pass couplers which offer the advantage of four tuned circuits for better "out-of-band rejection." All spurious and image signals are down 60 db, or more.

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- Linear tuning. \* Selectivity variable in five steps from 500 to 5,000 cycles.
- ★ 1 kc. calibration marks.
  ★ Constant tuning rate.
- \* Transmitter type v.f.o. with differential temp. com-
- Back-lash free gear driven tuning mechanism.
- Built-in 100 kc. crystal calibrator. Crystal controlled 1st and 3rd conversion oscillators.
- \* Sensitivity less than 1 microvolt.
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  - \* Band gain equalisation.

    \* Audio inverse feedback.

    \* "S" meter functions with a.v.c. off.

21.0 — 21.5 Mc. 28.0 — 28.5 Mc. 28.5 — 29.0 Mc. 29.0 — 29.5 Mc. 29.5 — 30.0 Mc. The SX-115 covers nine 500-kc. segments: 3.5 — 4.0 Mc. 7.0 — 7.5 Mc. 14.0 — 14.5 Mc. 9.5 — 10 Mc. for WWV/WWVH

The first conversion oscillator is crystal controlled, and is it do find to the first where whose cuptor varieties from 5.0 to 5.0 Mr. This signal is fed through an Li amplifier which has four permeability tuned circuits. The signal is fed through an Li amplifier which has four permeability tuned circuits. The signal is the fed into a life mixer where it is interformed with eighter a 5.8 ke or 1858 ke c. 1858 ke or 1850 ke or

TREES AND FUNCTIONS: SDCS f.f. amplifer, SBA7 1st mixer, BA77 xtal oscillator, SDCS 1st it. amplifer (6-5 Mo.), SBA7 2nd mixer, SCDS v.t.o. (linear, SDCS 2nd it. amplifer (1005 Kc.), SBA3 2nd mixer, BA77 xsb. withching oscillator, SDCS and it. amplifer (1005 Kc.), SBA3 2nd mixer, BA77 xsb. withching oscillator, SDCS and it. amplifer (1005 Kc.), SBA3 2nd xsbar 2nd

FRONT PANEL CONTROL AND FUNCTIONS: r.f. gain, audio gain, tuning, selectivity, function selector (upper/lower s.s.b., upper/lower a.m., on/off switch), cal. set lock, receive/standby switch, notch frequency, b.i.o. pitch, a.v.c./a.n.l. (a.v.c. on/off, s.s.b./c.w. a.n.l., a.m./a.n.l.), antenna trimmer, band switch, calibrator on/off, headphone jack. REAR CHASSIS: Coax antenna connector, audio output (3.2 and 500 ohms), auxiliary socket (50 kc. i.f. output, receiver muting), transmitter

POWER SUPPLY: 105/125v. 50/60 cycles a.c., 85 watts. SIZE AND WEIGHT: 16 in. wide, 101/2 in. high, 16 in. deep. 44 lbs. net weight.

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# P.M.G. ANNOUNCES GOVERNMENT AGREEMENT TO R.F.A.R.C. RECOMMENDATIONS

The recommendations of the Radio Frequency Allocation Review Committee have been presented to and accepted in their entirety by the Government, the Postmaster-General, Hon. C. W. Davidson, O.B.E., announced on Thursday, 12th October, 1961.

The Radio Frequency Allocation Review Committee (RFARC.) was an Ad Hoc Committee formed in August 1960 by the Postmaster-General to review the allocation of frequency channels for all Australian transmitting services in the light of the results of the Geneva 1989 Conference of the International Telecommunications Union.

Chained by Professor L. G. Huxley, Professor of Physics, National University, Canherra, the Committee represented the major frequent guess, the examination of the existing proposed examination of the existing proposed requency table arising prom and prior frequency table airling prom and prior frequency table airling proposed frequency table and proposed to the examination of the proposed to the frequency table to the proposed to the proposed to the proposed to the proterior to the proterior to the proposed to the proterior to the proterior to the proterior to the proposed to the proterior to the protection of the protection of the proterior to the protection of the protection of the proterior to the protection of the protection of the proterior to the protection of the protection of the protection of the proterior to the protection of the protection of the protection of the protection of the proterior to the protection of the protection of the protection of the protection of the proterior to the protection of the protect

The report of the R.F.A.R.C. was the culmination of twelve months arduous work from August 1960 until its final meeting in May 1961.

Representatives of all the major frequency users, including the Wireless Institute of Australia, enjoyed full period it as the Committee overlooked no one and set about providing the best institute is concerned, it commends the fine effort put up by this group of interest, backed by the technical know-how and experience from all sections of the communications services of the

communities of the will always be some who are not satisfied with the outcome of this committee's findings, but these few must be reminded that every Service lost some ground at the every Service lost some ground at the which appeared as an outcome of Geneva and the injection of these Services prought many new requirements into portions of the frequency spectrum, assured that the Amateur representative had an equal say with all the other services, and the Wireless Institute of member of the calibre of Mr. Arthur Tinkler, Vik32V, on the committee.

The frequency spectrum from 10 Kc. to 40 Gc. was examined and many changes were made throughout these frequencies from those that had been delived in the report in detail except where it affects the Amsteur Service in Australia. The frequencies for the Ametur Service in Australia are shown in the Table in three sections—the relationary of the Australia and the Australia

agreed for Australia in Geneva (1959), and the recommended frequencies from the findings of the R.F.A.R.C. Footnotes have been appended at the foot of the Table giving more detail on any special conditions applying to a particular frequency band.

As there are several references in the Table to the Amateur Service being a Secondary Service in certain bands, it should be clearly understood what it should be clearly understood what ary Service shall not cause harmful interference to stations of the Primary Service to which frequencies have ed in the future, they cannot calm protection from harmful interference from stations of the Primary Service, but can claim protection from cher stations and the stations of the same frequencies.

# TABLE OF PROPOSED FREQUENCIES ON NEXT PAGE

In addition to examining the frequency spectrum from 10 Ke. to 40 Ge, the committee made other recommendations to the Minister as an outcome of their deliberations. Two of these additional proposals are of particular interest to the Amateur Service in Australia.

- The first relates to the protection of frequency users in marginal receptional areas. The committee noted that there have been instances where the properties of the properties of the frequencies have been required to change frequency or close down to protect t.v. reception of low signal arrength and therefore recommended attempth and therefore recommended directed to support any user who conforms to the official requirements for his service and placed the onus on the individual receiver.
- The second, and more important recommendation affecting the Amstrecommendation affecting the Amstup of a similar committee to the RFARC. Ad Hoc Committee, to be to act in the National Interest and work in concert with the assigning work in concert with the assigning of the Amsterdam of the Amsterdam signed to it by the PAMG. This new committee was proposed to meet before and stert. IT.U. Conference referred by the Minister.

The position may be summarised as follows. The Amateur Service has gained a few extra frequencies over those allocated at Geneva, and have in addition, saved other frequencies which would not have been international at 4 Mc. band and the 144-148 Mc. band, which would have moved some time

in the future. As previously mentioned, some frequencies have been lost but the Amateur is not alone in this regard and we are now better off in certain frequencies, e.g. the 7 Mc. band, than our European contemporaries.

There has been some speculation about the compulsory use of single sideband phone techniques by Amateur and the sideband phone techniques by Amateur it be asid that this committee made no such recommendation in relation to the Amateur Service. They did, however, considerable and the sideband transmissions on frequencies between 1600 Ke. and 30 Mc., precommendation aimed at the Fixed and Marittee Mobile Services which double sideband transmissions. It seems very likely, in any case, that the Amateur Service, by January 1970, for its work of the sideband transmissions. It seems that the Amateur Service, by January 1970, for its using this type of emission.

There are several points which have not been enumerated in the above explanation, but these points will all be covered in detail in the Geneva Story which will be printed and issued to every Australian Amateur.

It must be repeated that although the Government bas accepted the proposals of the RFAR.C., the present allocation of frequencies will apply until official notification is received from the Postmaster-General's Depart-

W.I.A. FEDERAL EXECUTIVE.

### W.I.A. D.X.C.C. Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown. PHONE Cer. C'nt-Cer. C'nt-No. ries 2 256 45 256 43 250 51 230 21 221 VK6RU VK5AB VK6MK VK3AHO VK4FJ VK6KW VK3ATN VK4HR VK4RW VK3RZ VK3WL New Member: VK3BM .. 54 101 C.W. Cer. C'nt-No. ries 10 292 26 282 Cer. C'nt-No. ries 8 218 18 215 48 213 VK3KB VK3CX VK4FJ VK3NC VK4HR VK6RU VK3XU VK7LZ VK3YL 29 19 15 Amendment: VK3ARX 66 163 Cer. C'nt-No. ries 6 289 8 271 32 267 74 254 77 250 Cer. C'nt-No. ries 7 233 76 232 4 231 Call VK2ACX VK6RU VK4FJ VK6MK VK4HR VK3AHO

# THE VARNEY (G5RV) MULTIBAND ANTENNA

January issue of "A.R."—page 7— carried a brief description of the above antenna which has been in use by quite a number of stations since.

The design is essentially for 14 Mc., being 3/2 wavelengths at that frequency with the 34 ft. stub acting as a matching section.

Close examination will show that it is not a "multiband" antenna, even though it can be made to accept power on the 80, 40, 15, and 10 metre bands as well as 20, in varying amounts and with widely varying s.w.r.

So that, maybe, a simpler form of the antenna for 80 and 40 metres only, could be evolved, and one which would dispense with an a.t.u, some corres-pondence with GSRV has produced an alternative design which has not yet been tried in practice.

It seems that an a.t.u. is again neces-sary for proper functioning of this version also.

It is becoming apparent that an antenna of this nature will operate correctly only on or about the frequency which shows a proper match (s.w.r. near unity) for the co-ax line and in the case of the original G5RV, that frequency is in the 14 Mc. range.



### TABLE OF PROPOSED AMATEUR FREQUENCY ALLOCATIONS

Serial	Band Mc.	Australian Table under Atlantic City (1947)	Geneva 1959	R.F.A.R.C. Proposed Australian Table
1	1.8	1.84-1.86*	1.8-2.0 A, F, M, RN	1.8-1.86 RN, a
2	3.5	3.5-3.8 A. F. M	3.5-3.9 A, F, M	3.5-3.7 A
3	7.0	7.0-7.1 A 7.10-7.15 A. B	7.0-7.1 A	7.0-7.1 A 7.1-7.15 B, a
4	14	14.0-14.35 A	14.0-14.35 A	14.0-14.35 A
5	21	21.0-21.45 A	21.0-21.45 A	21.0 21.45 A
6	27	26.96-27.23 A, ISM	26.96-27.23 A, ISM	26.96-27.23 A, ISM, F. M
7	28	28.0-30.0 A	28.0-29.7 A	28.0-29.7 A
8	50	50-54 changed to 56-60 A	56-58 A	52-54 A
9	144	144-148 A	144-148 till June '63 then 146-150 A	144.148 A
10	288	288-296 A (tempor.)	No allocation	288-296 A till June 1963
11	420	Not allotted to A	420-450 RL, F, a	420-450 RL, a
12	576	576-585 A (tempor.)	No allocation	576-585 A
13	1215	1215-1300 A	1215-1300 RL, a	1215-1300 RL, a
14	2300	2300-2450 A	2300-2450 RL, a, f, m	2300-2450 RL, a
15	3300	Not allotted to A	3300-3500 RL, a	3300-3500 RL, a
16	5650	5650-5850 A	5650-5850 RL, a	5650-5850 RL, a
17	10.000	10-10.5 Gc. A	10-10.5 Gc. RL, a	10-10.5 Gc. RL. a
18	21 Gc.	21-22 A (tempor'y)	21-22 A	21-22 A

: Letters in the Table above shown in capital letters n Service, while lower case letters mean the Secondary Service. A means Amateur Service, B means Broadcasting Service, F means Fixed Service, M means Mobile Service, ISM means Industrial, Scientific and Medical Services, RL means the Radiolocation Service, and RN means Radionavigation Service.

The above Table has been shown only to imply what is proposed or exists in Australia unless otherwise noted, and is not intended to infer these

conditions apply elsewhere. Notes: Serial 1-\* This was allotted and available for emergency purposes only. Normal Amateur activities were not permitted on this band

Loran RN operates between 1820-1875 Kc. and no harmful interference may be caused to that Service. Serial 2-The Geneva frequencies here relate to other Region 2 and 3

countries. Serial 7-The actual world-wide frequencies from Atlantic City were 28-29.7 Mc.

Serial 8-The temporary allocation of 50-52 Mc, will probably be retained until required by the Broadcasting (TV) Service.

Serial 12—This is only an allocation until required by the eventual Service—Broadcasting.

Reports on the amended design, pub-lished herewith, will be interesting if s.w.r. measurements can be supplied for 3.5 and 7 Mc.



Two things emerge from these considerations:

(a) The use of a reflectometer, such as "Monimatch" or "Mickymatch" is essential if one wishes to do

any work on any kind of antenna.
(b) The most useful and probably most efficient wire antenna for multiband operation in restricted space is a dipole centre fed and of not less than quarter wavelength at the lowest frequency. fed by an open-wire line through an a.t.u. In other words, the system should be resonant at the frequency in use.



SA T ACU IN USE AT - GSRV For those of us who cannot erect two poles for a flat-top, and still have feeders in the proper place and of correct length, the solution is a single pole and "inverted vee." Even with the ends

at fence height, there seems to be no deterioration of performance! \_J. Herd, VK3JK. OFFICIAL V.H.F. RECORDS

IN AUSTRA	ALIA	
50 Mc.—	Date	Miles
VK3ALZ to XE1FU	1/5/59	8,419
VK5KL to W7ACS/KH6	26/8/57	5,355
VK2RU to JA1ANO	_	4.854
VK4NG to JA1AHS	22/1/56	4,145
144 Mc.—		
VK5GL to VK6BO	30/12/51	1.321
VK5QR to VK6BO	9/2/52	1.321
VK3ZCW to VK7LZ	_	512
288 Mc.—		
VK3ALZ to VK7LZ	10/1/60	284

VK5MT/5 to VK5RO/5 13/4/52 109 576 Mc-VK3ANW to VK3AKE 11/12/49 2.300 Mc. VK3XA to VK3ANW 18/2/50

VK3XA to VK3ANW 18/2/50 9.1 All the above distances have been checked and the control of the comparable or better figures and wish then to comparable or better figures and wish then to the Federal Secretari of the Wind details to see levels if both used above 50 Me. Proof of control of the Federal Secretari of the Wind XB.2—II lattice and longitudes not known. XB.2—II lattice and longitudes not known. XB.2—II lattice and longitudes not known. XB.2—II lattice and longitudes not known.

# ROSS HULL MEMORIAL V.H.F. CONTEST, 1961-62

The Federal Contest Committee of the Wireless Institute of Australia in-vites ail Australian and Overseas Am-ateurs and Short Wave Listeners to participate in this annual contest which is held to perpetuate the memory of the late Ross Hull whose interest in v.h.f. did much to advance the art.

A handsome Perpetual Trophy is awarded annually for competition be-tween members of the W.I.A. in Aus-tralia and its Territories inscribed with the name and life work of the man whom it honours. The name of the winning member of the W.I.A. each year is also inscribed on the Trophy. In addition, this member will receive a suitably inscribed, framed photograph of the Trophy.

Objects: Amateurs in each VK Call Area will endeavour to contact Amateurs in other Australian Call Areas and Overseas

Date of Contest: 16th December, 1961, to 14th January, 1962.

**Duration**: From 0001 hours E.A.S.T. (1401 hours G.M.T.) on 16/12/61 and 15/12/61 respectively, to 2359 hours (1359 G.M.T.) on 14/1/62.

### RITES

- 1. There shall be three main sections to the Contest:
  - (a) Transmitting, Open, 50 Mc. and higher. (b) Transmitting, Phone, 50 Mc. and
  - higher. (c) Receiving, Open, all bands, 50

Mc. and higher. All Australian and Overseas Am-ateurs may enter for the Contest whether their stations are fixed, portable or mobile.

3. All Amateur v.h.f bands may be used, but no cross-band operating is permitted, with the exception that the 50-54 Mc, and 56-60 Mc, bands will be considered to be the same band for contacts.

4. Amateurs may enter for any one of the transmitting sections. All contacts must be consecutively numbered in the one number sequence to facilitate checking.

5. Only one contact per band per station is allowed each calendar day.

 Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a contestant and must submit a separate log under his own call sign.

7. Entrants must operate within the terms of their licences.

8. Cyphers: Before points may be 8. Cypners: Hefore points may be claimed for a cortiact, serial numbers claimed for a cortiact, serial numbers will be made up of the RS (telephony) or RST (c.w.) report plus three figures commencing from 601 for the first contact and will increase in value by one for each successive contact. If any contact or each successive contact. If any contact is not series of the contact of the contact is not series or each successive contact. If any contact is not series of the contact is not series or each successive contact. If any contact is not series of the contact is not series or each successive contact. testant reaches 999 he will start again

9. Entrants must be set out as shown in the example, using only one side of the paper. Entries must be postmarked not later than one month after the Contest (i.e. not later than 14/2/62) and addressed to the Federal Contest Committee, W.I.A., Box 851J, G.P.O. mittee, W.I.A., Hobart, Tasmania.

10. Scoring for all sections will be based on the attached table. Contest-ants will have to agree between themselves as to the distance between their stations. Such distances must be shown in their log entry in the column usually used for remarks or bonus points.

11. Logs: All logs shall be set out as in the example and in addition will carry a front sheet showing the following information:

Name Call Sign Address ...Section..... Claimed Score

Declaration: I hereby certify that I have operated in accordance with the Rules and Spirit of the Contest.

> Signed Date

Note: Entries on the front sheet must be clearly shown in block letters.

12. The right is reserved to disqualify any entrant who, during the Contest, has not observed the regulations or who has consistently departed from the accepted code of operating ethics.

The ruling of the Federal Contest Committee of the W.I.A. will be final. No dispute will be entered into.

Awards: Certificates will awarded to the winners of each section in each VK and Overseas Call Area.
The VK contestant who returns the tions and who is a financial member of the W.I.A. will hold the Trophy until the next Ross Hull Contest is decided, and in addition will receive an appro-priately inscribed photograph of the Trophy.

### GENERAL

A new method of scoring has been evolved from suggestions made by the majority of VK Divisions. Comments on the operation of this new method will be appreciated by the F.C.C. It is sug-gested that contestants obtain a large scale map of Australia and of their State and mark on these maps the radial distances from their location in accordance with the scoring table.

### RECEIVING SECTION

1. Short Wave Listeners in Australia and Overseas may enter for the Contest, but no transmitting station may

2. Contest times and logging of stations on each band are as for the transmitting sections.

3. To count for points, logs will take the same form as for transmitting sec-tions but will omit the serial number received. Logs must show the call sign of the station heard (not the station worked), the serial number sent by it, and the call sign of the station being worked.

Scoring will be on the same basis as for transmitting stations. It is not sufficient to log a station calling CQ. 4. A station heard may be logged

only once per calendar day on each band for scoring purposes, but addi-tional reports will be of value to the 5. Awards: Certificates will

awarded to the highest scorer in each VK and Overseas Call Area.

SCOF	IN	G T	ABL	В		
Distances Between Stations		50 Mc.	144 Mc.	288 Mc.	576 Mc.	Higher
Up to 10 miles		1	1	1	1	
Over 10 and up 25 miles		1	1	1	2	10
Over 25 and up 50 miles	to	1	1	2	10	30
Over 50 and up 100 miles	to	4	2	6	20	60
Over 100 and to 200 miles		10	4	10	30	80
Over 200 and to 300 miles		20	10	16	40	
Over 300 and to 500 miles	up	10	16	30		

2 30 40

10 40

to 1,000 miles ... Over 1,000 and up to 5,000 miles Greater than 5,000 miles ...... 20 50 EXAMPLE OF RECEIVING LOG

Over 500 and up

EXAMPLE	OF	TRANSMITTING	LOG	

Date/ Time	Band	Emis- sion	Call Sign	RST/NR. Sent	RST/NR. Revd.	Distance	Points Claim.	Blank
				36 G 12 S	J. Bu	DOJA	AD	values on the
	Mot			45 MI-		no surs		1104

1	Date/ Time	Band		Station Heard	RST/NR. Sent	Station Called		Points Claim.	Blank
۱		M (* 10)	12017		A				
1		CIPE.	(10000) (C) (C) (C)		1270200		PERM	1	

NOTE.-State whether Time is E.A.S.T. or G.M.T.

# The present with a future . . .





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RADIO DIRECTION FINDER KIT (DF-3). A de luxe 3-band navigation aid. Sense antenna eliminates 180° ambiguity in bearings, Uses 6 flashlight batteries. 200 Kc/s-3.4 Mc/s, coverage, Illuminated dial & tuning meter. £121/2/-GRID DIP METER KIT (GD-1B). Serves either as an oscillator or absorption wave meter. Align LF. stages, adjust traps, filters and tuned circuits, and use this handy instrument for coil winding applications. £24/13/-. HARMONIC DISTORTION METER KIT (HD-1). Checks audio distortion accurately. Used with audio generator, the HD-1 will measure harmonic distortion at any frequency between 20 and 20,000 c/s. £35/6/-.

DEPTH SOUNDER KIT (M1-10). Shows depth, type of bottom, submerged objects. All transistor, flashlight cell operated. Dial calibrated 0-100, rotating neon indication. £60/16/-. AUDIO GENERATOR (AG-9A). Produces near-perfect sine waves for audio testing. 10 c/s-100 Kc/s. Accuracy plus or minus 5%. Distortion less than 0.1 of 1%. £59/1/-.



SINE, SQUARE WAVE GENERATOR KIT (AG-10). Both Sine and Square Wave outputs may be used at the same time. Frequency 20 c.p.s.-1 Mc. Frequency response plus or minus 1.5 db. £55/17/-. COMMUNICATIONS RECEIVER KIT (AR-3). Low cost Amateur and Short Wave Receiver. Modern superhet. circuit with high sensitivity, 550 Kc.-30 Mc. £43/15/-. AUDIO V.T.V.M. KIT (AV-3). Designed for accurate measurement of critical a.c. voltages. Frequency response plus or minus 1 do., 10 c.p.s.-400 Kc. Features large 415

of primary or secondary circuit patterns. £72/16/-.

voltages. Frequency rinch meter. £36/12/-. RESISTANCE-CAPACITANCE BRIDGE KIT (C3-U). Portable a.c. powered measures a wide range of capacitance 0.00001-1,000 gF. Power factor and leakage. Resistance 100 ohns to 5 megohms. £23.



HI-FI STEREO AMPLIFIER KIT (S-88). 8 watts per channel .1% distortion at 6 watts per channel. u/L push-pull output, gauged controls, push-button selection. Inputs for Stereo, Mono, Gram Radio and Tape Recorder. V.T.V.M. KIT (V-7A). The V-7A measures A.C. volts to 1,500 volts. R.M.S. 4,000 volts A.C., peak to peak. D.C. volts to 1500 volts. Resistance .1 ohms to 1000 megohms. Input resistance 11 megohms. £32/8/-.

TUBE CHECKER KIT (TC-3). This Tube Checker will test all tube types encountered in everyday radic TV work. Features versatile element switching, 9-tube sotypes, easy-roll chart, checks emission and leakage. £44/12/-VISUAL-AURAL SIGNAL TRACER KIT (T4): Pinpoints receiver faults quickly and economically by ing signals audibly through its speaker or visually through its "eye" tube. Also locates "noisy" and interm ing signals audibly to components. £22/6/-.

IMPEDANCE BRIDGE KIT (1B-2A). A Wheatsone Bridge, Capacity Comparison Bridge, Maxwell Bridge and Hay Bridge are combined for precision test facilities. Built in 1000 c/s. generator for A.C. tests. ½% decade Hay Bridge are combin resistors used, £66/13/6.

AUDIO ANALYZER KIT (AA-1) Here in one instrument is provided an A.C. V.T.V.M. audio wattmeter, and a complete intermedulation distortion analyzer. Measures noise, frequency response, output, gain and power loads of the complete of the com





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# VK-ZL DX CONTEST, 1960, RESULTS

Many thanks for your support in the 1960 VK-ZL DX Contest: Conditions on all bands were bad, especially during the phone week-end with the result that activity was not as high as usual. Nevertheless, the keener DX operators persisted and produced some excellent scores—made possible only by your support. Happy operating, good DX and 73,

Jock White, ZL2GX, Contest Manager, N.Z.A.R.T.

	Contest	Contest Manager,		N.Z.A.R.								
	AUSTRALIA											
C.W.												
Call	40	20	15	10	Tota							
VKIJE	55	2475	220	10-	275							
VK2GW	1675	5745	2305	2770	1249							
2ADE		4215	3135		949							
2APK		2765	1095	655	451							
2HV		460	-	-	46							
VK3DQ	. 1295		2360	1350	841							
3MR		5275	-	_	527							
3YD		4170	-	=	417							
3JF 3ARX		3970 3850			397							
3XB	. 1300	3000	OF THE	=	130							
3TL	1000	155	Ab	_	15							
VK4SN			1940	740	435							
4XJ		1010	1010	3045	304							
4SS		2035	_		203							
4SD		750	-	-	75							
VK5NO	1410		4210	1490	1404							
5RX		3275	-	_	327							
5JE	1705	==		==	170							
5NQ	. =	55 340	790	55 430	90 82							
	200	040		400	39							
5RK	390	380	_	=	38							
5LZ		_	165	110	27							
VK6WT		1995	_	_	295							
VK7SM		3530	1110	1600	650							
7KA		2740	1140	900	478							
7RY		270	135	_	40							
VK9XK	950	3500	3825	1540	981							
PHONE-												
Call	40	20	15	10	Tota							

VK9XK	950	3500	3825	1540	9815
PHONE-					
Call	40	20	15	10	Total
VK2AKF		1620	760	950	3330
2WC		2730	-	_	2730
2AKV		-	1000	490	1490
VK3GE		165	1155	_	1320
3ADN		110	_	-	110
VK5MS	-	6935	4480	2475	13790
5NQ		4375	1360	1715	7450
5LZ	-	275	55	-	330
VK7WA	_	1450	770	740	3345
VK9NT		3480	400	-	3880
9XK	_		1290	155	1445
Ch	eck L	g: VI	K2AD	E.	

RECEIVING-	
	oints
BERS-195-E. W. Trebilcock	5360
WIA-L2022-D. M. Grantley	5125
WIA-L5031-C. Hutchesson	4155
WIA-L3065-I. D. Thomas	3665
WIA-L6003-F. H. Price	2640
WIA-L6005-D. S. Pratt	2105
WIA-L2033-D. W. Shephard	1555
PA2045 M Cadron	985

NEW ZEALAND												
C.W.—	C.W.—											
Call	40	20	15	10	Total							
ZLIAH	1550			2300	13535							
1AIX	1000	5865	3335	2505	11705							
1AJU	380	3280	4750	2830	11240							
1APM		5410	3985	1565	10960							
1HS		5110	1305	3950	10365							
ING IAFW	160	4195 3080	400 1140	1625	6380 5245							
1HY	550	3000	990	55	1595							
ZL2AWJ	*1445	5410	2060	1360	10275							
2GS	905		1670	2230	9685							
2PM	670		1020	2200	5560							
2AYJ		5165	_	_	5165							
2GX		1295	2290	-	3585							
ZL3US		2830	2710	_	5540							
30B		3465	660	1215	5440							
ZL4GA	†1170			680	7680							
4JF		450	-	-	450							
Check Log					LISIS.							
* Inc	ludes 5	5 on	80 m	etres.								
7 Inc	riudes 1	ou on	80 n	ietres	· Brown							
PHONE-												
Call	40	20	15	10	Total							
ZLIAIX	490				11755							
1KG	155	4390	1725	2270	8540							
1HA		2920	2275	1155	6350							
1HY		220	55	-	275							
ZL2GX		220	_	-	220							
ZL3RT		210	495	-	705							
ZL4JF		55	-	_	55							
CI	neck Lo	g: ZI	1AM	M.								
0.												

RECEIVING-	Points
RA2834-W. L. B. Douglas	3430
ZL-259-L. I. Davies	1110
ZL-408-A. Petrie	Check
OVERSEAS	

C.W							
		North	America				
WIGYE	-	_ 495 pts.	K6CQM			3990 pts.	
WIWY		Check	WEIPH			420	
KIKPS		Check	KeBoB	0		126	
W2EQS		_ 2639 pts.	WIMA			2720	
K2UTC	-	. 1	K7KGP	-		280	
W3RNY		. 45	W7BTH			24	
W4FIJ .		3535	K7HID			Check	
W4KXV		1365	WSJIN		-	4176 pts.	
W4BJ	100	1079	W9WNV			3344	
K4PDV		550	Kawts			270	
K4JLD		230	KSCUY			160	
W4QVJ	1	42 ,,	WOBMM			336	
W5KC		4104	WOMCX			108	
K5KBH		2573 ,,	WOCTW			50	
WSBUK	-	1102	KLTALZ	100		792	
K5UYF		1100	VE3BWY			779	
WSEJT	-	612	KP4CC			390	
WSARJ	-	516	TI2CMF	-		96	
WellDD	**	5120	XEIPJ			424	
		South	America				
HKTZT			CEIBD				
HKIFF	**	. 176 pts.	YV3AS	-	-	160 pts.	
CESAG	-		IVJAS	**	-	240 .,	
CESAG	**	1575 ,,					
		A	sia				
JAIVY		4824 nts	JAIRKII			12 nte	

	Europ	e						
DL1FF 2	054 pts. O	K3KGW _	54 pt					
DLSEN 1	750 O	K2KGZ	. 9 ,					
DL1DX 1	200 O	KIKCI	1 .					
DL7AA 1		AOTAU .	. 103 .					
DLTBA	720 P	A0LOU						
DLIYA	49 P	AOWAC						
EA3CY	72 0	H5RU						
F2MA	221 0	HITN						
F9MS	88 0	H2FS						
F8TM	54 ,, 0	H2YV						
G4CP 1	176 0	H2QO						
G5RP	192 0	N4LX						
G3WP	9 L	ASGF						
HB9MO	392 " S	P6FZ						
HB9TT	276 ", S:	P9KJ						
HB9DX	30 " S.	P9ZU						
ITIAGA		M5LL						
OE1RZ	768 S.	M5CCE .						
OE3WB		M5ATK						
OZ7OMR		MSBEU						
OKILM		VOWZ						
		B5KAB						
OKIMG		R2BU						
OKILK		R2KAE						
OK3JR								
0110011								
	Oceani	3						
FK8AH 1	575 pts. Z	KIAR	836 pt					
WOSLD/KW6 5	670 K	H6DMW						
VRIB 4	294 K	HeDGL						
			220 .					
Africa								
FARRI		SEE SEE SEE SEE						
FASRJ	210 pts.							

	. KH6DMW 618 KH6DGL 220
	Africa
FASRJ 210 p	ts.
PHONE-	
Nort	h America
W1WY 15 pt	is. WSJIN 480 pts
W4SIB 162	Wance 3
W4EEO 18	K9ECE 96
	. K9JEL Check
	VE3DDI 96 pts
K5ZIT 228	VESIN 15
K5UYF 98 .	. TG9CP 560
	. TG5HC 406 ,,
W6JZG 1	. TI2CMF 10
Sout	h America
YV1EE 126 p	ts. YVSAKU 1 pts
YV5AKP 1 ,	
1	Europe
DL3LL 611 p	is. OH5SM 230 pts
EA3JE 250 40	. PAOJPC 1 ,,
	SM5ACC 90 UR2BU 112
CTIEY 216	UR2BU 112 UR2KAE 6
(	Oceania
KH6DLD 611 pt	

	ania		
KH6DLD 611 pts. K0SLD/KW6 1200	ZK1AR .	-	630 pts.
Aft	rica		
EL4A 1 pts.	ZS6NE		338 pts.
A	sia		
JA3AA 72 pts.	BVIUS .		
JA2JW 42 JA5GS 30			
JAIBNK 1 ,,	UAOKIA .		28
RECEIVING-			
M. Schoenherr			704 pts.
DL8497-F. W. Kradepo S. Papko			284
DL8847-H. Stipka			55
			Check
OE9-314-B. Christian		****	27 pts.
HE9EZG-J. Kundig SM5-2735-K. Nystrom		****	310
SM6-3144—H. Hielmstro	m	-	72 "
			45
SM4-2825-R. Johansson	1	***	28
SM6-E82—S. Nyman SM3-SWL—B. Berlind			28 Check
			363 pts.
			200
BRS-6604-E. H. Sherloo	:k		276
K2-7079 B. Adams		-	24

-Miss O. J. Martin

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### **BOOK REVIEW**

### "THE SURPLUS HANDBOOK"

A 94-page quarto size book dealing with various military surplus radio equipment, much of which is available on the Australian market. Each piece of gear is provided with an identifying photograph and the circuit. It is a well-prepared book and con-

tains much interpretation of contraction to the contraction of contraction of contraction of the RAX. Receivers are featured, along with 46 other circuits. This book would repay its cost by providing details on much locally available gear, which to date has not available gear, which to date has not contracting the contraction one owning BC312, BC348, Super Pro. MW36, T.CS. gear, etc., this is an excellent book.

### "VHF FOR THE RADIO AMATEUR"

This 208-page book comprises an excellent volume for anyone interested in v.h.f. Nine chapters cover the major aspects of v.h.f. gear and comprise propagation, antennae, transmitters, modulation, power supplies, converters, i.f. systems, pre-ampliflers and test equipment.

equipment.

The author of the book is recognised as one of the leading white experiance of the leading white experiance of the leading white experiments of the leading parametric amplifiers and gear for 1298 flo.

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### SIXTH ELIZABETH BIRTHDAY CELEBRATIONS

In November 1955 the town of Elizabeth was officially begun. Named after Her Majesty Queen Elizabeth the 2nd, the town of Elizabeth State of the Sta

incensed Amateur.

On the anniversiary of the foundation of the Control of the State of the Stat club event.

This year the Fair will be held on Saturday, 25th November, and it is anticipated that in the region of 20,000 people will attend. The E.A.R.C. station. VK51.Z. will operate from 10 a.m. until 10.30 p.m. from this location. In an endeavour to provide good solid contacts for demonstration to the public, the club station will operate on the 80 and 40 metre bands only.

An appeal is hereby made to the other Am-aters of Australia to assist us in this effort. An interesting feature of the club's activities is the Elizabethan Award issued for contact with stations in the town. The rules of this award are appended herewith. If you are interested in either assisting in displaying Amateur Radio to the public or the award, or both, here is your chance.

award, or both, here is your chance.

Procedure for contact with the club station on 20th November will be carried out as within Elizabeth will be rotated to act as control stations. Calls should be made to the control stations. Calls should be made to the control stations make the control stations on the club station frequency as required. By QRM to each other and to contacts being held with VRALZ and thus create a good impression for the public.

We request all Amateurs wherever possible to assist us by providing contacts, adhering

EG:

to the above simple rule and by keeping a watch out on the band before transmitting so as to avoid causing QRM.

In this way we feel that most benefit can be brought to all, particularly the aspect of public relations with those who may wonder at our hobby.

So keep a watch out for VKSLZ Elizabeth on 40 and 80 metres on Saturday, 25th Novem-ber. You can help us and also make contacts for our award. Call signs of some of the Elizabeth stations are as follows: VKs 5LZ (club station), 5DI, 5DY, 5EJ, 5EU, 5FY, 5HA, 5HB, 5KD, 5NO, 5NQ, 5TM, 5QL and 5QX.

—Ian J. Hunt, VK5QX, Communications Officer E.A.R.C., Birthday Celebrations Committee.

### "SPEAKING OF THE PAST" The Key Section of the Victorian Division Wireless Institute of Australia, sent out to following circular to Amateurs, dated a January, 1934:

"It has been decided to hold a week-end camp at Mornington on A.N.A. week-end. 27th to 28th January, 1934. Several transmitters will be in operation in the camp and it sproposed to play inter-section cricket matches to enable a representative team to be picked for the annual match against the R.Ps.

"To discuss the arrangements to be made, a meeting of those who intend to be present, either for the duration of the camp or for one day only, will be held on Wednesday night next, 10th January, in the Institute rooms.

"Now here's a first class chance to have a really good week-end, with swimming, cricket, radio and any other hobby you care to name.

"The cost of the camp will be extremely cheap, so if you are interested please don't forget to come along on Wednesday night, 10th January, 1934, at 3 o'clock.—J. H. Winton, Hon. Secretary."

### THE FLIZARETHAN AWARD

The Elizabeth Amateur Radio Club made the award available during 1980, and it has been fairly popular. Some 83 have been issued so far.

The award is approximately 10 x 7% inches in size and has black printing on a quality white card. In order to make the award some-thing different, it is personally signed by the Amateurs who have been claimed by the applicant. It is also available to Short Wave The awards are serially numbered, and the date of issue is that date on which the appli-

Due to the award being signed personally, it takes a little while before it is ready for despatch, but it will arrive in due course! Return postage or two International Reply oupons are requested to save the club's

I anyone is interested in the cored, therements the Elizabeth Anasture Club Station VKLZ. Will be operating during the Elizabeth Sixth Birthday Celebrations on November 23. Many other Elizabeth anasture will be on also, so maybe that cluster "list one" will turn up for your THE SUITABLES AMATEUR CADIO CLUB



The club station will be looking for good contacts and plenty of them on 25th November in order to provide quality signals for the general public to hear at the shack. The requirements for the award have been amended to include members of the Elizabeth Amateur Radio Club as well as those resident in Elizabeth and Salisbury districts.

To qualify for the award, the following conditions apply:-DX stations require six points (VK9 and VK0 included).

2. VKs 1 to 8 require eight points. 3 Contact with an Amateur resident in Elizabeth and Salisbury districts, OR a member of the Elizabeth Amateur Radio Club, count 1 point.

Contact with the official club station, VK5LZ, count two points.

5. Any contact on v.h.f. (50 Mc. and up) count two points.

 S.W. Listeners must include call of station being worked by the Elizabeth Amateur. 7. All contacts after 1st January, 1960.

8. Enclose return postage or two LR.C.

8. Enclose return possage of two members of the Award Manager, Elizabeth Amateur Radio Club, P.O. Box 8, Elizabeth, South Australia. Calls of Amateurs resident in the district, and the club at present, are: VKS. or members of the club at present, are: VKs
SDS, SDY, SEJ, SEU, SFY, SHA, SHB, SIUU, SHY,
SJO, SKD, SNO, SNG, SPE, SPF, SQL, SQX,
SRS, STM, SZAK, SZBR, SZCA, SZDA, SZDV,
SZJM, SZMA, SZMK,



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FOR ACCURACY, STABILITY, ACTIVITY AND OUTPUT Our Crystals cover all types and frequencies in

common use and include overtone, plated and vacuum mounted. Holders include the following: DC11, FT243, HC-6U, CRA, B7G, Octal, HC-18U. THE FOLLOWING FISHING-BOAT FREQUEN-CIES ARE AVAILABLE IN FT243 HOLDERS:-6280, 4095, 4535, 2760, 2524 Kc. 5.500 Kc. T.V. Sweep Generator Crystals, £3/12/6.

100 Kc. and 1000 Kc. Frequency Standard, £8/10/0 plus 121% Sales Tax. Immediate delivery on all above types. AUDIO AND ULTRASONIC CRYSTALS-Prices on application.

455 Kc. Filter Crystals, vacuum mounted, £6/10/0 each plus 12½% Sales Tax. ALSO AMATEUR TYPE CRYSTALS-3.5 AND 7 Mc. BAND. Commercial—0.02% £3/12/6, 0.01% £3/15/6. plus 12½% Sales Tax.

Amateur—from £3 each, plus 12½% Sales Tax.

Regrinds £1/10/2.

CRYSTALS FOR TAXI AND BUSH FIRE SETS ALSO AVAILABLE. We would be happy to advise and quote you. New Zealand Representatives: Messrs. Carrel & Carrel, Box 2102, Auckland.

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manufacturing methods are the latest.

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HIGSON LANE, MELBOURNE, C.1

Phone: 63-4771

# D X

Alan Shawsmith, VK4SS 35 Whynot Street, West End, Brisbane, Qld. Phone 4-6526 (7 a.m.-4 p.m.)

mostly from North and South America.

Overall, I would say that the conditions have been below those of previous years, for this past month of September. This, however, is 7 Mc. would be much better if more of the rarer countries were active. Sometimes, the band is wide open to Africa or South America, there may be only one 89 signal from a part

### NEWS AND NOTES

NEWS AND NOTES

KHGEDY is on both 7 and 14 Mc, and fairly regular around 0700 hrs. GMT. You should know, by now, he is on Kure 1s. and is classed as a new country. OHTMP is a 7 Mc. regular (usually about 2000 hrs. GMT at low end) and seems to be able to hear and work VK better than most Europeans at this hour. VK better than most Europeans at tims sour-Eric 4KWP is another heard often on 7 Eric 4KWP is another heard often on 7 to work well into VK. VQADT has a real \$3 local stand here on 7 VQADT has a real \$3 local stand here on 7 JALEES will be on Marcus 1s, inew country) JALEES will be on Marcus 1s, inew country) Martin OYTML is on 14 Mc, sab, ton time available). Operation is from Farce 1s. UA0BP is also s.s.b. and in Zone 18. Times 300 hrs. and 0800 hrs. GMT. ZD6PR and ZD6GA, in Nyasaland, share a s.s.b. rig and should be active by now. HVICN. If you did work the Vatican som months ago and still haven't a card, to W2VCZ. He has all the logs. VIVICE. He has all the logs.

9US, Ruanda-Urundi, has no QSL bureau
or club, but if you have any cards for the
ollowing, you can try sending them to 9USDS,
be Schrijver Odilon, P.O. Box 1185, Usumbars,
tuanda-Urundi. 9USTT, 9USMC, 9USNC, 9UPD, and 9USBH.

my overseas schedules for notes fell through this month, so this section is a little light on. But more next month. ACTIVITIES

ACTIVITIES
BUI VKZAQ sends in the following, 14 Mc.
s.b.b.: WILOP 1155, VZEBWY 1220s, K6SXT
1155s, KAZYO 120s, VYZALE COSS, ELECT
1155s, KSAZYO 120s, VYZALE COSS, ELECT
1053s, SMSBIZ 1150s, DUISA 1210s, SMSBIA
1053s, SMSBIZ 1150s, DUISA 1210s, SMSBIA
1054s, SMSBIZ 1150s, DUISA 1210s, SMSBIA
1055s, SMSBIZ 1150s, DUISA 1210s, JAZS 085s,
WSBITW, 0 0045, ULTKAA 1050, ULAGKIA 110s,
be glad to QSO you on c.w., Bud, and please
can you send your notes two or three days
earlier.)

Brose Victors into the facility of the Process of t

He VECTO shows on with a list that green he has last his one on the job mis mouth, jits of the property of the control of the

DOI. 1202 SOUTH COM.)

DOI. 1203 SOUTH has been buy this month the month of the common of the common

220/98. Keep up the good work. Oil. DEEL BEET-SE has lengthed the following: AS DEEL BEET-SE has been been the following: AS DEEL BEET-SE HEAD OF THE SECOND TO SECOND

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cerce va and other UAS.

Harry VK5MY reports working a few nice
ones on 7 Mr. They are 5N2LKZ, W4CAA/
KM6. CRTIZ, ZE1AS, YV2BJ, KX6AJ, V96CN
VP5BL/5, and Kure Is, on 21 Mc., namely,
KH6EDY. All on c.w.

KW6DG, KW6DF—Box 63, Wake Island.

JZ0PO—Decca Navigator Co. Ltd., Merauke,

Netherlands New Guinea.

OZIMR—(YL op.) Mrs. M. Rasmussen, Auri-kelvej, 8 St., T.V., Valby, Copenhagen, Denmark.

Vommark.

You have a \$50 with some of the flowering have lift as the \$50.00 with flowering howers are the flowering have lift as the \$50.00 with the Watch, Amilyulle, N.Y., who is their manager ZDDCF, VPERH, VQCF, JZBHA, VRASH, VQCF, VPERH, VRASH, VQCF, VQCF

TGBAL.

SYARSB—Op.: R. S. Briggs, 1 Brigade Signal
Troop, Kaduna, Nigeria.

VQ2CZ—Op.: W. E. Rymer, Box 332, Kitwe,
North Rhodesla.

FB8CX—Op.: Chas Danbier, B.P. 93, Antsirabe,
Madagascar.

LUIZI—Elkworth Land, QSL via W9DHQ. Ex-VK9XK-Via VK3 Bureau

VRIM-Tarawa, QSL via WIHGT. W2MAK/MM—G. W. Dumont, 26W 130 St., New York 37, N.Y. OA4EY—Box 3772, Lima, Peru.

VS9AC-J/T A. R. W. Cake, Block 1, Bottom West, R.A.F. Khormaksar, B.F.P.O. 69, Aden.

VP2LO—QSL via W6NJU, Gary Stilwell, 434
N. Laurel Ave., Los Angeles 48, Calif.

#### SUMMARY

SUMMANY
The month of November, in this area environment of the month of November, in this area environment of the month of

angular, who have written the column before me will know better than most, that it is not possible to cover all the bands well enough to get a picture of what gees on or of conditions get a picture of what gees on or of conditions couple of the bands in any sense of continuously of the bands in any sense of continuation of the bands in the bands in

The term "73".—The Ws tell me the sending of the figures "73" as a sign off precedure was of the figures "73" as a sign off precedure was there days of U.S. history. During this time it was said that a man needed, among other thing, a Winchester Tio survive. This was thing, a Winchester Tio survive. This was wished him 73, you therefore wished him the best. (By courtesy of KSCQM.)

Finally, I would like to say thanks again to those who try to help all they can with the DX news. Without you I doubt if this column would survive. 73 (but remember, never leave it loaded), Al VK4S.

Wireless Institute of Australia Victorian Division

# A.O.C.P. CLASS

### commences THURSDAY, 9th NOV., '61

Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

Persons desirous of being enrolled should communicate with-Secretary W.I.A., Victorian Div-ision, P.O. Box 36, East Melbourne (Phone: 67-3084, 10 a.m. to 3 p.m.), or the Class Manager on either of the above evenings.



### NEW RELEASE! NEW LOW PRICE! LIGHTWEIGHT

**EFFICIENT** 



# **TRANSISTOR** D.C.-D.C. CONVERTER

The ideal power supply for private or commercial use-the P.S.25 Transistor D.C.-D.C. Power Converter is quiet in operation, lightweight, efficient and fully laboratory tested. The unit comes complete with full instructions, circuit and connection diagrams, and will be available from all A & R Stockists by mid November!

TYPE PS 25

Input Volts: 12-14 volts d.c.
Output Power: 45 watts maximum.
Input Current: 15 vonts: 15 volts: 15 volts:

See your nearest A & R Distributor-

OUE YOUR MEMICES A & R. DISKITIOULOF—
VIC. J. H. Magrath, Radio Paris, Motor Spares, Warburton Franki, Howard El N.S.W. Watkin, Wynne Factory Reps.) and available at all leading Stockists.
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S. AUST. Gerard & Goodman, A. G. Heizling, General Accessories.
Q'LANDI A. E. Harold, Chandlers, Trackson Bros.
TAS.: Homercafts Phy. Ltd. (all Tamanian branches).

Warburton Franki, Howard Electrical & Radio Co., and Douglas Radio,

Maximum Operating Temperature: 150°F, (approx. 65°C.).

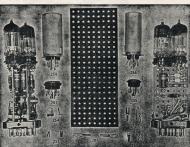
\*\*L. ambient air kemp, at point of installation.)

\*\*Filtering: "IT plus Low"—requires external filtering. LT and HT filtering includes suppression of harmonics allowing use of converter on sensitive receivers. Mounting: 4-hole rear mounting. Complete unit easily removable from mounting base.

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# V H F

# David Tanner, VK3AAU

Things are starting to look up again on the v.h.f. soore after a few months of being in the control of the cont

of the control with its extension. But At Peach have of the control of the contro

# Correspondence

### GENTLEMEN'S AGREEMENT

GENTLEMEN'S AGREEMENT
Editor "A.R.", Deer Sir. electron Tollogram
Editor "A.R.", Deer Sir. electron Tollogram
Editor "A.R.", Deer Sir. electron Tollogram
They're the funnient thing in "A.R." exceeding
SPS's notes in aburufity and zany humour.
May I suggest that as a token of our gratuMay I suggest that as a token of our gratuMay I suggest that as a token of our gratuMay I suggest that as a token of our gratuMay I suggest that a suggest that a suggest that a suggest that the suggest that a suggest that the suggest that t -Jeff Vale. VKSNO.

Editor "A.R.," Dear Sir,
Re the abolition of c.w. by Roth Jones. I
fall to see that there is any sound reason for
entertaining such thoughts. Simply because
a now a minority group, it does not and the man hard beer is then general reason. The concomment of the control o -Al Shawsmith, VK4SS.

Editor "A.R.," Dear Sir,

The correspondence published in relation to
the "Gentlemen's Agreement" prompts me to
write the first letter I have ever sent to the

that JAAU will be going to Batchelor, about 20 celd of the south of Darwin for at least 2 and 10 cell of the south of Darwin for at least 2 and 10 cell of the south of the so

tower and all that goes with—both h.f. and ... News of 388 Me. activity is very short at several controlled and the second of th

During the week-end I, as usual, spent some spent in the property of the prope

sell.

Once upon a time we spoke of the "Spirit of Amateur Radio," but I am afraid that spirit is moribund and shortly we will be able to say "requiescat". -Fred Carruthers, VK2PF. P.S.—The "gentleman" of whom I write is also, I would point out, in breach of the regulations.

RE PAGE EIGHT, OCT. "A.R."

RE FAGE HORT. OCT. "AR."

Clatter JAAL." Days Sir,

"One Anny Young Man" has only himself

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"One Anny Young Man" has only himself

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med the per minute when looking for wear "wat a specialise we have on 14 Me.] I call "CQL Metree from Mr. Gambler and have localise fillment and Private Section 14 Me.] I call "CQL Metree from Mr. Gambler and have localise fillment and Pri are above 16 Me.) over one mergeryle, the answering station could be compared to the control of the country of

### LIMITED LICENSEES

LIMITED LICENSPIES

Editor "A.R." Deer Sili,
was obtained to the state of the state

N.S.W. CENTRAL COAST SECT.

# GOSFORD FIELD DAY SUNDAY, NOVEMBER 19

GOSFORD SAILING CLUB 40 AND 2 METRE HUNTS.

XYL BOAT TRIP, ETC. Reg Brook, VK2AI, Secretary.

# S W L

Maurice Cox, WIA-L3055 Flat 1, 37 Boyd Crescent, Olympic Village, Heidelberg, N.23, Victoria.

Here is more from the man again, with move of the Service the Transition of the Context nearly with the key out up with the key of the Service the Ser

NE VENEZIELE.—The local S. w.l. Group are thinking of publishing a s.w.l. Journal, which seems American and the seems and the se

"Garden Controlled Converter a Progression of Controlled Controlle

These you, colin, for all the new from the Wester. Lost negating of the Group, I'were shaded to be construction in thick consists that the construction in thick consists of the colon of t e had a good usy,
ere also.

Ray Price has been ill, sorry to hear it son,
pope you soon recover 100 per cent. Lea
ynter was at our last meeting and he tells
e he heard a G3 on 160 mx calling CQ, so
pep your ears open on the top band.

Letters this last month are from Fred Mac-iewicz, Peter Drew, Chas, Aberneathy, Peter ield, Eric Trebilcock, Peter Vernon ia new-mer from VK2) and Harry Major. Thank

Badde top; get to how, Nee, out teach him still.

Refer Trebliches—I am smooth of his statis.

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services and collect and for its special picture. And collect are for its special picture. From the collection of the co

and the internal is 50 H. tong, so the property of the propert

manipulation of the b.c. rx's tuning knob will then produce results. Thank you Peter. He The World Radio Handbook he likes too. Her The World Radio Handbook he likes too. Her are some interesting frequencies to note the Peter has supplied. The Pyring Doctor Service School of the Air around \$3 Mc. On £39 Mc or your letter Peter, most interesting. Well, fellow S.w.1's. that's my issue for this month, so 73 and best of DX. Maurice £308.

Countries Zns. S.s.b. S.s.b. No. Conf. Hrd. Conf. Conf. Hrd. Cds Grantley Hilliard Aberneathy

# LOW DRIFT CRYSTALS

# AMATFUR BANDS

ACCURACY 0.02% OF STATED FREQUENCY

3.5 and 7 Mc. Unmounted, £2/10/0 Mounted, £3/0/0

12.5 and 14 Mc. Fundamental Crystals, "Low Drift,"

Mounted only, £5. THESE PRICES DO NOT

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Spot Frequency Crystals Prices on Application. Regrinds .... £1/10/0

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# SIDEBAND

Bud Pounsett, VK2AQJ 6 Alice Street, Queanbeyan, N.S.W.

S.S.B. AND 20 METRES

The October editorial of "A.R." put forth the A.R.R.L. case for the solution of the QRM problem on the high end of 20 mx. This scheme does not find favour all over the world, however. Here is the R.S.G.B. stand on the matter as extracted from the August R.S.C.B.

matter as extracted from the August R.S.C.B.

"The Editions in "QET", for July 18th was
The Editions in "QET", for July 18th was
the second of the text of the tex of a million operators in the U.S. would have its repercusions on the rest of the world, and the position is now becoming such that sta-tions in the U.S.A. are often unable to work the property of the transfer of the transfer because of the tremendous QRM blotting out the weaker DX stations, who are commencing to operate around 14.125 kc. away from the W/K QRM.

"To arrest this move the A.R.R.L. recommend that 15 kc. (sufficient space for seven s.s.b. stations) be left clear at the top end of the band. Users of the 14 Mc. allocation are well

aware that this portion frequently contains commercial stations and journary, and is a rest-leaf Frequency. Truff, which, in any case, clear Frequency. Truff, which, in any case, and the stationary of the tuning arrangements of many serial systems of the tuning arrangements of many serial systems of the tuning arrangements of many serial systems of the stationary of the

tions on intens in the American telephony subin Canada, the majority of operators toward
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Safety': etc., etc. It should be noted that the latter points are considered as operating axioms, not a question of ethics—with which we are involved here.

andors, not a question of ethics—with which we will be the control of the control

Ime or call me on the air.

[Two letters have been received from VK Amateurs on Editorial in "A.R." Oct. '61. These have been passed to F.E. for comment prior to publication.—Editor.

### BETTER OPERATING-NETTING

Get a net going on any one of our bands and in five minutes one or more of the participants are not quite on frequency. It is stated in the rule book that each five minutes we are obliged to identify. Why not get into the habit of checking the netting at this time. KEYING THE TRANSMITTER

Have you had the desire to use some c.w. occasionally? Many ex-c.w. men are amongst the sideband operators today and many more are joining our ranks. However having once enjoyed the pleasures of pounding brass, it seems a pity not to have c.w. available in your sideband transmitter.

your sicklend transmitter.

In most transmitter this is not a great
In most transmitter that is not a great
of unbalancing the balanced modulator. Phase
interest transmitter sunually have some form of
circuit in the August Sicklend Notes shows
or circuit in the base at label more complex form
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of currier insertion using a cathod fo

control in the beam deflection circuit.

Your keving method will depend on the
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convenience obtained, just press the key to
frament with mil breakth facilities. Do not
ment of the control circuit in your
section, the note will not sound quite TB if
the microphone is left open!

### VK2ON TRANSMITTER

VK20N TRANSMITTEL
It is regretted that the continuation of this
interesting series does not appear this month,
however next month, Sideband will bring you
a description of the driver amplifier and the
final linear amplifier using an EL38 and a pair
of the popular \$11As in grounded grid.

THUMBNAIL SKETCH OF KECOM.

Beb Murphs, now KECOM, Johnste the Navy in 18th to learn the code. He spent three years in 18th to learn the code. He spent three years within a month of the discharge in 18th, he within a month of the discharge in 18th, he will be supported by the spent of the s THUMBNAIL SKETCH OF K6COM.

# TEST EQUIPMENT

### Famous E.I.C.O. brand Kits now available in Australia This is a piece of equipment that should be in every shack,

G.D.O. This is a piece of equipment that should be in coal should be in the should be in the should be without to print. Ask the chap who has one, he will tell you he wouldn't be without to print. Ask the chap who has one, ne will tell you he wouldn't be without one. Take the guesswork out of the gear you build and asave yourself time. The E.I.C.O. G.D.O. has a frequency range of 400 Ke. to 250 Mc. in eight factory-wound coils which are wound to 0.5% accuracy on polystyrene formers. Variable sensitivity control. 500  $\mu$ A. meter and phone jack for listening to zero beat. 240-volt operation. 22710/90 including sales tax.

V.T.V.M. Peak-to-Peak V.T.V.M. with a large 74 meter. ONE probe handles D.C., A.C. and Ohms. Measures directly 4.200 voits. D.C./R.M.S. sine volts 0-1.5, 5, 15, 59, 150, 500 and 1,500 voits. O.C./R.M.S. sine volts 0-1.5, 5, 15, 50, 150, 500 and 1,500 voits. O.M.S. of the volts of voits of the volts of voits of the volts of voits of vo ing sales tax.

CRYSTALS. Brand new type FX-1 Crystals made by International 0.75" high, 0.75" wide, 0.375" deep. Pins are 0.25" long and spaced 0.5" apart. Ceramic sockets are supplied with each Crystal.

1,000 Kc.—Accuracy 0.005%—£6/0/0 plus sales tax. 1,500 Kc.—Accuracy 0.005%—£4/16/0 plus sales tax. 3,500 Kc.—Accuracy 0.005%—£3/18/0 plus sales tax. All goods despatched Free of Charge by Registered Post. Be sure to include

your full address and Money Order or Cheque with your order. MAIL ORDERS ONLY-NO CALLERS PLEASE Other items in the E.I.C.O. range are available, as are Crystals of other

types and frequencies. Your enquiries will receive prompt attention. TRANSTRONIC PRODUCTS

123 BALGOWLAH ROAD, FAIRLIGHT, SYDNEY, N.S.W.

# NOTES

### FEDERAL

R.S.G.B. MEMBERSHIP

The annual subscription rate to R.S.G.B. for Overseas Corporate Members is 23/- sterling. Application forms may be obtained from the R.S.G.B. Headquarters, New Ruskin House, Little Russell St., London, W.C.I.

TIME STANDARDISATION

ATME STANDARDSALION
At the annual meeting of A.R.R.L. Board of
Directors on May 5, 1961, Raymond E. Meyers,
WSMLZ, moved that all references to time in
any League publications or bulletins of the
Communications Department be in G.M.T. This matter is worthy of consideration by ne W.I.A. and all such bodies throughout the

RADIO AIDS SHEEP RESEARCH

It was not to the control by Service Section 1. The service Se CONTACT ON 10,000 Mc.

Congratulations to Keith Jeffcoat, VK2BK, and Alan Nutt, VK2DN, for establishing communication over five miles on 10,000 Mc. VK-2DN transmitter on 10,000 Mc. and VK2BK on June 3.

CIVIL WAR CENTENNIAL AWARD, VA-CWC CIVIL WAR CENTENNIAL AWARD, VA-UWC
The Virginia are pleased to announce a new award
virginia, are pleased to announce a new award
virginia, are pleased to announce a new award
tennial Award, VA-CWC. This award is being
ssued from the capital of the Confederacy,
Richmond, Virginia, to commemorate the four
years of the War between the State. 1861-65. This award is available to all licensed Ambridge and the state of the

Say 31, 1995.

Applications for this award shall be addressed. Applications of this award shall be addressed. Do Box 73, Richmond 1, Virginia. The list suntited shall be signed by two other licensed Amateur operators or an officer of the local shall be applied to the signed by the shall be supported by the same shall be shall be supported by the shall accompany the application.

ANOTHER AWARD: E.A.R.S.

ANOTHER AWARD: E.A.E.S.

This award is issued by Edmond Amateur Radio Society of 318 East Hurd. Edmond. Control of the Society of the Society of the Society after list August, 1899. Applicants must send list of stations contacted they are some some statement of the Society after of the Society of the Soci

The Secretary of the Society, Bertha WSJCY, would like to QSO a YL or XYL of VK Hams. MR. CHARLES STRADWICK, O.B.E., RETIRES

FROM P.M.G. DEPARTMENT Our congratulations to the retiring Director-General of Posts and Telegraphs, on his appointment as General Manager of the Far East-Pacific-Australia division of International Telephone and Telegraph Corporation and Vice-Fresident of International Standard Electric Cornoration

As Director-General he has been associated with many impressive policy changes and in 1956, Mr. Stradwick was chairman of the Olympic Games Communications and Broad-casting Committee.

B.E.R.U. CONTESTS 1961

The leading entrants in the various sections of the B.E.R.U. Contests 1961 were as follows: High power section: ZC4IP, GSWP, GSFPQ, VEZWW, GSDQ, GSRI; low power section: GSIDC, ZS4MG, VQSIMD, GZDU, VK7SM, and

### NEW SOUTH WALES GENERAL MEETING

GENERAL MEETING
The Sept. meeting of the Division was held, as is customary, at Science House, Gloucester St., Sydney, and was presided over by Bill YID. The attedance was somewhat disappoint manner made up by the presence of a goodly number of visitors. These were vedcomed by Green, Robin Germen, Robe Mayall, Serge Division, the Sept. Sept rich, Toba Kovacs and Des Wickham. Apologies for non-attendance were received from 2MP, 2ZEL, 2ZH, 2AGH and 2ZTM. The passing of Frank Goyne, VK2UX, was announced and members observed a silence of one minute to his memory. New members admitted consisted of 7 full members, 23 associate members, and I members, and I member chib. and 1 member club

and I member club.

The lecture for over the array of the club of sides be had used in his lecture to the Division. The Federal Commiller's report was received the side of the property of the

DIVISIONAL CONVENTION

Meetings here been held of a small commeeting here been held of a small comwhich will be held in Jensury 1862. The
variety of the held in Jensury 1862, The
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co of the year.

Helpers will also be required as time goes on so join in and assist your Council by doing your bit and maybe the other fellow will join in also. Remember, "many hands make light work."

HUNTER BRANCH

HUNTER BRANCH
The Sept. meeting of the Branch was again well sitended, there being 19 members, nine associates and three visitors present. Main sacciates and three visitors present. Main Keith Jeffcoat, VK2BK, of "Radio and Hobbies," entitled "improving the Performance of Your Receiver." The lecture was very well received and members were presented with

### -SILENT KEY-

It is with deep regret that we record the passing of:-VK2JP-Jack Pike. VK2UX-Frank Goyen. Ex-VK5MB-H. M. Brown.

printed diagrams to illustrate the various modi-fication maggested. Many of the chaps rathed home to get out their soldering irons and high gain valves following the lecture. At least one member, Tony Mullen, has made his ARS "So like a rocket' since beering about the pretty fair idea before. Our old and respected rubber cheque man, Shannon from the bay, cheque man, Shannon from the b

reckons he is going to build a preselector to give more gain, no preselectors are needed to bear the fab. 2 mx signal radiated by John 22.04. Congratulations on a mightly signal John. Rumour has it that 2 mx selvity in it is afoot to have all those interested obtain identical xials so that a net may be formed. Gorton 2250 or your serble, it is said to knows where xials may be obtained. Among the victors seen at recent meetings has been Bill 2CW. I don't think it would take much arm-twisting to get Bill to join our ranks again, so you professional arm-twisters, get busy!

Some people are never satisfied. Did you make a some people are never satisfied. Did you make the control of th is secretly building a unior mobile right to be a control of the c

an organized him rush for bundles of technical internative organized by Gereal internative org

their several ways and prepared for the TDF day was written and the total properties. TDF day was written and to the total properties and to the total properties are to the total properties and to the total properties and to the total properties and the total properties and to the total properties are to the total properties and to the total properties are to the total properties and to the total properties are to the total properties and to the total properties are to the total properties and to the total properties are to the total properties and to the total properties are to the total properties aread properties are to the total properties are to the total prope

seems they did for the terrible trio rem unfound, except by Harold, for the will all this was going on, a 65-pass launch was cruising on the lake with 2 while all this was going on, a co-passenger launch was cruising on the lake with XYLs, YLs, OMs and juntor ops on board. And to make matters even more heetite, a fiendish quiz, dreamed up by an old character, was circulating among all who had nothing else

As well as the mobile competitions As well as the mobile competitions, a display of home-built goer was arranged with a hand-of home-built goer was arranged with a final control of the contro

Dave 2AWZ.

And its entered model and many of a companitances were renewed and many years to return
tances were renewed and many years to return
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Be was the cont of signs and other "behind the scenes" jobs. P.S.—If you want to know more about 2 yourself slong to the University College, Tighes thin, on Friday week, that the 10th, and there this subject. Yes, I mean Major 2RU. So roll up and let's awaken 144 in Newcastle. As Bill up and let's awaken 144 in Newcastle. As Bill that there'll be any social meeting during November. Never mind, see you the month November. Never mind, see you the month ovember. Never

SOUTH-WESTERN ZONE
The Night Annual Convention of the SouthProperty of the Southholiday week-end, 3th Sept. 1st Oct, at Tunistant, and the Sept. 1st Oct, at Tunistant, Bill Yill, accompanied by his XYI, and
son, and Counciller The ZUTA, represented the
6-Starday morning of the Tunian-runnia During the Starday morning of the Tuniantunian Startage of the Starday morning of the Tuniantunian Startage of the Starday morning of the Tunianstantistic commenced in the C.W.A. Fall, with
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O'Keefs, officially opened the Convention. The SOUTH-WESTERN ZONE

#### ORITHARY FRANK GOYEN, VK2UX

THANK GOYEN, VKUX
The death occurryd, in Concord RegistraGoyen, VKUX, after four monthy serious
times. Though Frent inaw role have
times. Though Frent inaw role have
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number of years and rose to the rain
Amistary Riddo was well represented an
information by the brothers relatively. VK
represented by a His-long friend, Jim 2VC.
In famility. On complete its extended to

H. M. OMERV.) BROWN, EX-VEMINI
Lake R.A.M. and P.M.G. aged By rearEddo Annelsors in VSS leaved this month,
and the rearrange of the rearrang H. M. (MERV.) BROWN, EX-VK5MB passing is a severe blow to the VK5 radio fraternity.

To his sorrowing wife, Ivy, we extend our deepest and sincere sympathy, and can only hope that time will assist to ease the sense of loss and sorrow through which she is passing. we extend

2ZTM and at the conclusion of the dinner, an interesting address on Wireless Institute mat-ters was presented by the President, Bill 2YB. Films were then enjoyed until supper time.

Activity commenced on Studya morning at Machael Activity commenced on Studya morning at worn by Eddie 1VP, second place went to Tim ZTM. The fox was Keith ZAA, Back to the ZTM. The fox was Keith ZAA, Back to the Consolitions, contact was impossible on the call listen to the Divisional broadcast. Due to poor conditions, contact was impossible on the call well attended, after which lunch was taken. The early attended, after which lunch was taken the early attended of the contact was the contact with the contact was the contact with the contact was a support of the contact were of a local nature. How

ever, Bill 2YB turned in a log of 1-4 contacts to take first place, the minor placings being filled by Frenk 2ACQ with 13 contacts, and Ross 2FN with 12 contacts. At 3 p.m. the hidden tx hunt set under

since by Frence ACQ, with 11 contests, and fore 1270 with 12 contacts, and 12 contests, and fore 1270 with 12 contacts. In 12 contest, and 12

### YOUTH RADIO CLUBS

There are carrising signs of increased interest official and otherwise in Worth Radio for the Control of the Co

THE BLUE MOUNTAINS SECTION THE BLUE MOUNTAINS SECTION
The monthly meeting for October was held
at Lawson Council Chambers, as usual, and
41 members attended. There being no lecture,
the night was devoted to business, the section
field day programme was finalised and 15 looks
like a good day should be had by those who
join us on 8th November.

join us on 5th November.

The lecture Dave 2NK delivered to C.D. at Lawson was well received. A typical evacuation film was shown and proved very enlightening. Eight club members ventured to Lawson to support Dave and by the many questions asked all round, the night was voted a complete

success.

The on-the-air get-together is proving quite successful, even though the October night was a bit confused. Some of us remained on till almost midnight. Don't forget second Friday at 2000 hours, 80 and 2 mx.

Sid 2AVK is selling up all his gear in preparation for going on six weeks' holiday and



Division, W.I.A., held its Annual Dinner on 30/9/61. Among the 70 who attended were (standing, from left) Gordon 2ZSG, Branch Secretary; Pierce 2APQ, Federal Councillor: Allen Fairhall, M.H.R., 2KB; Stuart 2AYF, Branch Pre-sident: Lionel 2CS, Branch Vice-President; and seated Professor J. S. Ratcliffe, M.I.R.E.; Ray 2HC; H. S. Young, 2AMZ, P.M.G's. Dept.; W. N. Williams, 2XV, Editor "R.T. & H."

Hunter Branch of N.S.W.

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then perhaps for an extended working tour. Sid will have portable equipment, about 20w. Alec 2EX has obtained a 2m tour 10w. Alec 2EX has obtained a 2m tour 10w. In a contract of the claim. Hope to hear a lot modulation very soon and is going to throw the key sway. Looks like I will have to hot Dick 2BM must be a quite worker, my sples haven't come up with anything yet, maybe park morth.

Fext month.

No excuss for Nord Walker now he has all No excuss from Nord Market Nord State In Ten and a listening on 2 mx and has more than half a tx for that band, January exam, Noel? Jack 2ADF will be on holidays in a week or so, half your luck and have a good time. Col 1AQU was according to my sples Bob is going to have a go at sideband. 73, 2ADA.

BOORAGUL HIGH SCHOOL RADIO CLUB BOORACUL MIGH SCHOOL RADIO CLUB
Although there has not been a great deal
of transmitting activity this month, things are
of the state of the state of the state of the state
that regular transmissions can now be maintained. The club has just completed the recrutting drive from second-year clauses and
the senior boys are getting ready for examinations towards the club attainments certificates and it is hoped that some of the new
December, also try for the Elementary in

Now that Ian has his call, 2AJF, he has taken b hiding tx's. At least he very effectively id the 40 mx one for the recent Blackalls leld Day so that only one contestant found. Tony helped him there. Bruce and Allen ted as pathinders, not for the hidden tx, and put up the signs directling strangers to

Rex 2YA has presented the club with quite a quantity of gear including among other things, an AT5 on loan from the Institute. We may have a big signal soon!—73, 2ATZ.

### NON-DELIVERY OF "A.R."

If you are not receiving your copy of "A.R." please follow these steps which will ensure the correct procedure is followed; any attempt to short circuit the system will only further delay matters.

Write to your Divisional Secretary advising non receipt of "AR." do not write to "AR." The Divisional Secretary should write to the Circulation Manager "AR.," P.O. Box 36, East Melbourne, C.2, Vic., advising him of the problem. Unless this advice is received before the 8th of the month, a further month must elapse before the member can be re-instated upon the circulation

Please ensure that you always advise your Divisional Secretary writing, verbal advice will

### HIGH SCHOOL RADIO CLUB MEMBER GETS FULL LICENCE

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photograph shows Ian at the school sta-VK2ATZ. He designed and constructed x, which runs about 15 watts, crystal

### VICTORIA STATE CONVENTION

STATE CONTINUES.

On Saturday, Mh Segr., the Prooffth Annual State Convention commenced at 2:13 pm. et al. (1) pm. et al. (2) pm. et al. (2)

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### MONTHLY MEETING

The months, addressed by George Dimer Side on the subject, "The Other Side on the subject, "The Other Side on the subject, and subject on the subject of the monthly meeting on October 4 was sed by George Bills-Thompson, 3AHN e subject, "The Other Side of Photo-"George prefaced his talk with the observation that many Arnatters work at in-cretion, and that other Annatters would goin reaches a second of the control of the reaches and the control of the control of the works with Kotak the name that is one control of the photography, described the sensitive costing to film and noper. This property is the control of the control of the sensitive costing to film and noper. This work was the control of the control of the entire that the control of the control of the control of which may be replaced at a little of the control of the control of the internation of which may be replaced at a control of which may be replaced at a control of which may be replaced as a control of the shortest of the control of the control

contamination. It was interesting to note that every sheet of cut film, even the most sensitive panchromatic types, is examined visually by safelight material and the safelight shadow of the safelight shadow of the safe which illustrated the talk were of excellent quality. A film showing the use of the high speed movie camera tover 3,200 frames per second) in the examination of frames per second) in the examin rapidly moving objects, such as relay TRY

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A & R SUPERSEDED NUMBERS

		Voltage											
lo.	mA.	Aside		Fila	ments								
1768	125	325			6.3v.								
1769	125	350	5v.	2a.,	6.3v.	2a.,	6.3v	. 2a.			57/6	+	ta:
1778	175	350	5v.	3a.,	6.3v.	3a.,	6.3 v	. 3a.	c.t.		78/6	+	ta:
1783	180	410	5v.	3a.,	6.3v.	4a.	c.t., 6	3.3v.	5a.	c.t.	100/-	+	tax
1782	200	450	5v.	3a.,	6.3v.	3a.,	6.3v.	3a.	.c.t		106/-	+	tax
1781	200	400	5v.	3a.,	6.3v.	3a.,	6.3v.	3a.	c.t.		95/-	+	ta
	Any	of abo	ove '	Tran	sform	ers.	5/6 F	ack	and	Po	st.		

### 10 WATT W.W. RESISTORS 1 to 10 ohms 2/8 each

11	to	5K "	2/3		ALL VALUES
5001	to	7500 ohms	2/8	**	AVAILABLE
7501	to	10K ,	3/4		
10001	to	12K "	4/8	,,	Plus tax 25%
12001	to	15K	5/8		
15001	to	20K	6/8	**	Plus Pack and Post, 1/- doz.
20001	to	30K	10/-		Post, 1/- doz.

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# 20 RESISTORS—CARBON 1w. +10% 60/- + 25% tax.

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IN LOTS OF 100 MIXED VALUES ½w. ±10% 50/- + 25% tax.

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dw. 13/- doz. + 25% tax. 1w. 10/- doz. + 25% tax. 18w. 13/- doz. + 25% tax. 8/- doz. + 25% tax.

#### Imported Moulded Alligator Clips, red and black Imported Crystal Earpieces 2/4 pair + 12½% tax 5/8 each + 25% tax Imported Front Loading Bezels—red only ... Imported Miniature Phone Plugs and Jacks 2/9 each S.T. exempt 2/3 pair + 12½% tax 16/- pair + 25% tax Imported Power Diodes HR25, 500 mA. at 500 p.i.v.

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exploites we ben severed. Any two streets are consistent or probably all unternal from nightmares. The talk was rounded off with a film describing the manufacture of with a film describing the manufacture of manufacturing operations must be one of manufacturing operations must be one of unanifacturing operations must be one of usually the president thanked George for his very interesting fecture.

When the president thanked George for his very interesting fecture.

The president thanked George for the control of the subject, "Marine Electronic Equipment,"—ARL in the president of the president o

### EASTERN ZONE

Main news this month seems to centre around 2 mx where we have a hive of activity. New stations to join the hook-ups, after some long absence, are 3QZ, 3AIT, 3TH, with 3BB yet to absence, are 30Z. ANT, 5TH, with 23B yet to The property of the control of the control of the Two new members, Ken and Blu Gurnames unknown) are to all for their AO.C.P. in Two property of the control of the control of the corpus 20ZO will have the 32 element 2 mix stripe to be full faced and the control of the corpus 20ZO will be deemed 2 mix beam back 22ZO has put his I defensed 2 mix beam back you connect it up. Gores 2ZOG keeps repa-you connect it up. Gores 2ZOG keeps repa-work as few VA. And UA-wo in 0 mix and work as few VA. And UA-wo in 0 mix and us testing hits 2 mx mobile, and should be in section for the Ximas biolagys—20XII.

NORTH EASTERN ZONE

Activity on the Perdon right boolcup in this execution of the Perdon right boolcup in this case of the Perdon right boolcup in the person of the Perdon right boolcup and some very interesting 460c have been in an hour or so is steadily furcessing and in an hour or so is steadily furcessing and half hock-up, including two newcomes to the last hock-up, including the Act of the last half to the last h

treev, patting in an appearance within two MRX, AANV, 217, AAVI, 2170, ANVI, 2

#### WESTERN ZONE

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### QUEENSLAND

THE SUNSHINE STATE

THE SUNSMINE STATE

Has ye Ed. given us credit for sunshine this month? He has been keeping off it lately and I wonder if it is because he feared an exodus from the States where there is not so much sunshine? Just between you and me, we could Go with , drep of rain.

Untailly the news write is a bilt stable by the bill to the property of the control of do with a drop of rain.

### GENERAL MEETING

GINERAL METING
This was held on Priday, Zind at the State
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New York and America by "Doe" 450, to
New York and America by "Doe" 450, to
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New York and York an Bill 4WX is going along OK but it will be while before he can take an active part ain although he listens to many of the

It was noted at the Council meeting that Bill 4WX would not be able to undertake his secretarial duties for some time and as there were no volunteers, Jim 4PR will fill the breach. To relieve Jim of some of his duties, it was suggested that yours truly become act-ing chairman of the Council.

### GENERAL

The unclaimed QSL cards listed each month has proved a worthwhile feature as many cards have been claimed. This month's list is 40J, 40V, 4PC, 4PG, 4SJ, 4SR, 4SQ. Among callers for cards has been 4GE. Presure of business has kept him off the air foresome years, but he hopes to become active in the near future. Old-timer, Bob 4RB, a regular attender of general meetings, is a greater help to the Scout movement and station 4AH at Ashgrove.

at Asigrove.

Dr. Thomas, of the Physics Dept. Qld. University, will tell us of his work at the November general meeting. Dr. Thomas' job is "long distance trans countrial propagation" research. Come along, the talk is for YOU. I have not heard of any items for the Fed-ral agenda being forwarded. Don't leave it too late. Members will be sorry to hear that Dell 4RJ has entered hospital and that Stan 48T, who was preparing for "Jamborse of the Air." is having heart trouble, which we hope won't keep him off the air for long. Who knows anything about the Brisbane DX lub which is listed in books with world-wide

circulation? The V.h.f. Group is as lively and active as ever. They held a meeting at the QTH of Malcolm 4ZEL on 15th to discuss ways and means of tx hunting. Their next tx hunt will be held on the 6th. They reported some good 6 mx short openings with JAl, 2, 3 and 9. Next meeting at QTH of 4ZAG, Towong.

The Northern Command Club's Sept, meet-ting, which was chaired by President Brian, passed a motion amending the constitution and the new posts of secretary and treasurer were filled by Jim Green and Tony Crane. Heard Brian 4ZAP galloping off to Southport the other day with his mobile. CENTRAL QUEENSLAND

The Sept. meeting was to include a lecture by 4MT who has a little Morris chock-a-block full of radio gear, including car radio, xtal

converters, 7-14-50 and 144 Mc., a tx for 7-14 Mc. and for 50-144 Mc.—three tx in all. A mod-ulator is switched for the tx in use and so on

ulator is switched for the tx in use and so on and so on-pore Morris. On the six and it's twice the six and six an

Anyone hearing private s.s.b. "phone patches" on 21 Mc. band is asked to pass information on to the Secretary at Box 638J and appro-priate action will be taken. SOUTH COAST

Settling on the land is Tex 4TX, who is leaving the coast for the highlands within sight of his old haunts and from which he will be able to look down on us all. Here's all the best for success in the venture, Tex.

Spring and the holiday season are affecting the boys. Aff 40L has been heard bursting at various beaches as far south as Byron Bay and north to Rockhampton. The mobile was not forgotten, but the tyre pump was and Alf had two flats. With help from another motorist he was able to proceed on his way. he was able to proceed on his way.

The Muse also stirred Howard 4WO, while
he was at Caloundra, but the effort was in
sults one of these days. Sian 48A crawled
from under a heap of tax avoidance forms and
before anyone know, he bobs up in Bundaberg
from the before anyone know, he bobs up in Bundaberg
and heard well and often are Jim 4HZ and
and heard well and often are Jim 4HZ and
Bill 45W. The Sunny State is also an objective for the Southerners and Sid 25G and
JWB have been heard frequently. To, 4WS. CAIRNS

Bazil 4ZW carried out tests on 6 mx with John 4ZAV and Charlie 4GA, who were up on "Gentle Annie," near Millaa Millaa, but nary a note was heard by the Townsville boys. South Australia please note. A certain Cairns Amateur got a big fright recently when he realised he was a little late paying his license fee and broke all records to the local P.O. fee and broke all records to the local P.O. What about some details of your transistor powered tx that fits in the palm of your hand, Harry 4HKF. Claude 4ZV was in hospital for with a wog. Hope both of you are OK now, Instead of John 4ZAV going to Gordonvale, he went to Brisbane and got married, but is now back at Atherton. Congrats. John TOWNSVILLE

They have done it again, the beautiful cover on the October anniversary issue of "A.R." Simple, but arresting. (Flattery will get you nowhere.—Ed.) nowhere.—Bo.)

Can we let our sister Dominion, Canada, best us? See by August "QST" that the Canadian Government has granted a Citizens Band as from April 1962.

The local radio club had a station in the The local station and the Canada and quite a number of the locals worked a roster. quite a number of the locals worked a roster. Have heard Claude 4UX teeing up skeds with the various Pacific Islands for the Scout Jamboree. Very sorry to be out when Sid 28G called, just missed me by five minutes. Any-how, will see you both in November. now, will see you look in November. It say the least. On 14 Mc. one night it will open and next night close and all skeds messed up, and the least of the least o

Eric 4EL has had mention in "QST" and also the local paper for the number of QSOs run-ning into the many thousands since he came on the air pre-war and has over 6,000 QSLs to on the air pre-war and has over 5,000 seems or prove it.

Smoke signals being deciphered here has it that a W.I.A. club is to be formed in Ayr now they have the necessary W.I.A. members locally. Good luck to you all.

Heard a chap the other night signing HY4, giving QTH as Seoul in Korea. The new calls certainly keep one guessing. The northern Z boys seem to have given the game away as they are never heard. Maybe they are sweating out the code. Hope this is the only reason I never hear them. Maybe now summer is here the band will open to the south. 73, 4RW. TYPE 65

General purpose with low frequency response TYPE 66

P.A. use where less low frequencies are required than the 65 with a lift in the middle frequency to ensure high output without feedback

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Communication use, has further reduction in low frequencies than the 66 and increase in high frequencies for intelli-gibility through noise.

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### SOUTH AUSTRALIA

set comes. John retired hort and disappeared and not appear until most later in the sight. The two lectures were has IMV and Abstatir the control of the con

both lectures.

Little business, either Poterral or Divisional, Little business, either Poterral or Divisional, the VKZ Division regarding GSL earth was the CVZ Division regarding GSL earth was been contented and so deadly the logs will enter the contents and so deadly the logs will enter the contents and so deadly the particular team of the contents and the particular team of the contents and the witching hour of the contents and the witching hour of contents and the witching hour of contents and the witching hour of contents and the contents are contents and the contents and the contents are contents and the contents and the

The Emergency Fire Services Communica-tions conference was held this month and John SIC represented the Division in the joint role of Wilder. The service of the service of the of Wilder. John was one of the speakers at the conference and stressed the need of extending the Wilder. Activities in VKS, and the outcome is that a conference of the technical communications committee is called for the near future, at which two representatives of WLEAN and two presentatives of the Elisabeth Radio Chb will state, and it is brosted that from this get-lengther WLEAN. In the congregates of the State, in the congregates of the State, in the congregates of the State, in the congregate of the State, in the congregate of the young and settler life, but there years of the young and settler life, but there years of the young and settler life, but there years of the young and settler life, but there years of the young and settler life, but there years of the young and settler life, but there you was not the congregate of the dephants, the congregate of the dephants, the congregate of the congregate of the congregate of the congregate of the young the year. On that such wickelenses the property of the property of the congregate of the years of

could be of the control of the could be of the bendering be of the could be of chemist shop, planned to go boom about 2 am.! Joe 3JO is still running around with an arrow protruding from an unmentionable portion of his anatomy, hotly pursued by a filter tier of the standardy, hotly pursued by a filter great the knot be long now Joe, ere this is being read, the knot will be tied, Judging by the number of locals who have been invited to handed the standard to say who was going to give Panay away at the weeding? It is the bride who is given to the weeding? It is the bride who is given chemist shop, planned to go boom about 2 a.m.! away, mug

"The old boot basher" 5JX, that's what my spy called him, has a new car these days and is sight-seeing to his heart's content, with a consequent suffering of his activity on the air. consequent suffering of his activity on the six. The VXZ. SIVILIA betweek recently re-Fig. VXZ. SIVILIA betweek recently re-responding to the control of the control of the con-trol of the control of the control of the con-presentation and relationship to the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-long the same lines and next it had, to every-ture to this band of VXI commented to an example of the control of the con-trol of the con-trol of the control of the con-trol of the con-

anteed to work.

Miracles of miracles, Frank 5MZ is reported as being completely free of breaks, fractures, cuts, burns and punctures. The one-eyed monster has him in its grip at night times, but service between 5 and 6.30 p.m. on 7 Mc., the truth of which can be verified by many VK3s on this band. on this band. Incidentally, talking about Frank, don't ask me why, but if the person who is using his call sign on is Mc. cares to call on Frank, he can take away a big bunch of European QSL cards: Personally I think it is Frank's harmonic, and he is too modest to admit it. I have had them that strong:

mome, and he is too modest to simil it. It.

Over, over, over, over, dather round all ye that
follow the geopel according to Compa SETfollowing the geopel according to Compa SETto Compa SETto Compa SETto Compa SETThe proportion of contact made on a sab, but
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notes!

Hughie 5BC was down this month from Renmark on his annual vacation and from all reports was heard and worked mobile by all and sundry. He works on the unmentionall and sundry. He works on the unmentionable bands so I cannot give any comment, but I understand he was looking in the pink. Keith SKH (or SWI, take your choice) is another one who has been away on his vecation number two. Went up to the Flinders Ranges and proudly is boasting that he was only there for minutes and had his first con-tact. He is raving about the receiving con-ditions, but is dumb on anything else. Talk-ditions, the contact of the con-vantage of the school holidays to move of on a well deserved holiday, I can't say that the contact of the contact of the con-tact of the con-tact of the contact of the con-tact of the contact of the con-tact of the con-ta

Harold \$2.542 was unlusky recently to have Harold \$2.542 was unlusky recently to have or as you will, he keeps his radio gear or as you will, he keeps his radio gear on the property of the property of the property of the blaze in order with a garden hose and free extinguisher until the brigade arrived. Have not heard if the brigade arrived, Have not heard if the brigade wants to recruit him.

cruit aim. It is at the moment in the threes of learning to play the recorder. For the hencit of the peasants like myself, the recorder is a wood wind instrument dating beek to Queen that from has had it all that time. Even his best friends won't tell him about his wood-best friends won't tell him about his wood-got up a petition to restrain him, their staffs are all knocking off at the wrong times! are all knocking off at the wrong times!

Who was the Vikt ravelling in the Remark

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united by t secret is safe with me sir, I think!
The annual general meeting of the ElizaThe annual general meeting of the Elizating of members and the following were noted
Yes DS, DY, EU, EJ, PY, HB, JO, NO, AU
ZMA, ZMK and listeners L5393, L5361 and
L544, Allogother a fair smattering of the
L544, Allogother a fair smattering of the
cause if you are trying for the Elizabethyau
award, any of these call signs can help the

Following a proposal at this meeting, it was decided that the rules for the above award be altered to include members of the club, whether they reside in the district or not. they resuce in the district or not.

The first and foremost news from the Elizabeth district tells of the 40 mx ground plane that has sprouted overnight on the QTH of Tubby 5NO and "Fred" 5NQ, all of which indicates that they are going to add to the local QRM. And how!

local QRM. And now:

Harry 5EU has been to G land for a while
which means that Ian 5QX has the 15 mx band
to himself. Harry is telling all the Gs that if
they want his QSL when he returns to YK5
they will have to give him at least an S point
above that of Tubby.

above that of Tubby.

Ron 5FY has returned from a vacation in VK2 (what a place to spend a vacation) and nothing can be reported against him whilst there. He had not stopped his rx down to the bones in the place of the place o

that he did not want to come back to VEX.

Sixes SIAA has been having trouble with his
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for a burst of summer activity.

Rumsur has it that Comps. SEF was heard at various times this month from the danger at the control of the co

In all the years that I have been written these notes for With. the may be that I have notes for With. the may be that I have never been able to recentle myself to, it is a support of the property of the pr torgot the Anateur, nor all that Amsteur Radio had meant to hair, for the hearft of all the Incidentally, mainly seed the hearft of all the Divisions, Don Gooding, Chief Enginer of SAD and ADST, passed sway also this month, as a Radio Amateur, he had stitled many of our functions as a guest and representing the ILE., was extremely syngulated toward us, on his staff, and we learnt of his passing with regest, Our syngulary is exchanged to his wife to the regest, Our syngulary is exchanged to his wife to the control of the passing with regest, Our syngulary is exchanged to his wife.

of the flow example, is extended to his was and family and family

WESTERN AUSTRALIA

With our regular VK6 weather returning, activity on the Ham bands has increased considerably. Mobileers and portables are well in evidence during the day and at night the fraternity are happy to put down their paint brushes and gardening tools and relax in the shack. Since the visit of the VK3 bushfire party contacts with E.S. Hams have increased. If a steur has visited your shack. Incidentally, we have a VK5 spy roaming around the State. One SZE, and we were worked to the contact of the contact of the visit of the contact of the c

lika Aliany and Reperance. Better stay around Turn muching seeding was well attended as much members of the seeding se

ceressing and instructive.

One of the highlights of the month was a hamfest at Moora. This was controlled by 6CL with his 150w./P. and attended by nearby Hams and some from Perth, notably 6AB and 8FH. Many contacts were made, but I will leave this to an abler pen than mine to deserble elsewhere. leave this to an abser pen than mine to de-scribe elsewhere.

6LF at Carnaryon is doing his share to keep the lower bands in use. Since he received his call sign during the month he is heard on 80 mx and 40 mx most days and is collecting quite a log.

DX'ers will have to look out for 6WS who now has a permit to use a Panda tx and is a past master at tuning it. Congratulations to our G.O.M. Skipper.

LOW NOISE XTAL CONVS. 144 Mc. Repairs to and construction of Receiv-ers, Transmitters and Test Equipment. T.V. alignment.

ECCLESTON ELECTRONICS 146a Cotham Road, Kew, Vic. WY 3777 SYO, was absent from the meeting. Our spice till us he got his hand out of phase with a sledge hammer and at present it is in an aledge hammer and at present it is in the converse of the con

helm soon. Teat in if he can stop whethers with a state of the can stop whether with a state of the can stop with a state of the can stop with a state of the can state of the c this month, so

### TASMANIA

TASMANIA

Olid-lines with be sorry to issue not the death of Keith ex-VKTKV, who died early in Oceber on the 180 miles bend pre-war. Gry End, early in Oceber (180 pt.) and the pre-war on the 190 miles bend pre-war. Gry End, early in Sept. passed or very sutthetently bended, and minur consists, beth on vAX and the response from Amsterns throughout Australiant Control of the Contr

was too.

At the time of writing, the phone section
of the VK/ZL Contest has passed, and conditions in the south were most disappointing.
Severe sunspot activity made all bands largely
useless during the entire 24 hours. Seever sumped activity made all boards branch for the control of the boards branch for the control of the boards branch for the control of the boards and the control of the boards and the control of th

NORTH WESTERN ZONE

NORTH WESTERN ZONE
Ken TKH took the chair for the first time
at our October meeting and stiffully handled
which was really a poor show. Those present
were TKH, 70MS, 73F, 7KL, 7ZAA, 7MK, and
enthusiasts. It was decided to hold a film evening for the social evening in November. This
may altivat a better roll up. The rag chew
The exhibition to be held at Devoport has
been put forward to November 23, 44 and 23.

So we have more time to prepare. Has any one the radiation pattern of a full wave ver tical on 80 mx? Associate Bob is suspendin a gas-filled balloon 250 feet above the hall am will include a vertical wire for an antenna So look out chaps.

so look out chaps.

Several locals will have participated in the famboree on the Air by the time this is read. Sid 78F has instituted a container service for the transport of disposal gear from the main-and. Could grow into a charter. George 7XL a starting to converse in monkey chatter, so mitcipate a.s.b. coming from that quarter one

peculiar effects have been noticed as Some peculiar effects have been noticed as a result of magnetic disturbances lately. Med. to result of magnetic disturbances lately. Med. to result of magnetic disturbances have been been of the magnetic disturbances of Was staggered to learn that my notes were awaited with anticipation, from XYLs. My heartfelt thanks to Sweet Buttercup for her encouragement. News is scarce this month, so the old scribe will have to sign off. 73, 7MX.

### HAMADS Minimum 5/-, for thirty words.

dilinium J.-f. for thirty words.

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FOR SALE: C.R.O. 3" screen, commer-cial job. All controls, inputs, u.h.f., etc. Pos. and neg. triggering, vert. atten. e.h.t., beautifully made, excellent per-former. Amer. octal base valves, £35. O'Brien, C/o. P.O. San Remo, Vic.

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SELL: AMR200 Receiver with power supply and speaker. Not in working order. Suitable for re-building. £15. Week-ends only please, 46 Elphinstone St., Footscray West, W.12, Vic. SELL: BC453-454, modified for double

conversion, suitable as tunable i.f. for converters. AR77E Communications Rx in good condition, excellent performers.

WANTED: Curtiss Propellor Pitch-change Motor and Gearbox complete. Must be unmodified. Price, etc. to VK5OC, Old Belair Rd., Belair, phone 78-2401

WANTED: Type 3 in good order, VK3AUK, Bob Kidgell, Phone 27-3202. WANTED TO BUY: Complete medium powered 10-80 metre phone transmitter with power supply, amateur band re-ceiver and suitable frequency measur-ing equipment. Particulars to H. T. Swanton, 16 Karma Ave., East Malvern, Vic.

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FT DC CFT FT DC DC FT FT DC	3010 3050 3195 3320 3332.5 3340 3440 3690 3828 3830 3830 3835 3930 3995 4010 4025	FT FT FT FT FT DC FT FT FT FT FT	4360 4440 4445 4465 4483 4490 4495 4535 4540 4549 4660 4672.7 4676 4695 4730 4735	DC FT LP FT	4895 4930 5005.6 5110 5145 5166.6 5170 5210 5227.5 5220 5237.5 5250 5285 5295 5300 5365	FT FT DC FT	5552.5 5635 5655 5660 5706 5706 5740 57740 57770 57773.3 5775 5780 5780 5782 5810 5815	DC LP LP LP LP FT DC FT DC FT	5980 6021.1 6032 6040 6050 6110 6210 6225 6235 6240 6243.3 6265 6300 6350 6355	LP DC FT LP	6547.9 6561.3 6550 6560 6561 6572.3 6640 6650 6750 6750 6783.3 6815 6840 6890 6935 7010	FT LP DC FT FT LP DC DC DC DC DC DC	7373.3 7375 7450 7400 7406.6 7425 7440 7600 7890 7925 7930 7962.8 7810 8036.2 8171.25
DC DC FT	3970 3995 4010 4025	FT FT FT FT	4695 4730 4735 4750	FT LP FT FT	5295 5300 5360 5365	FT DC FT FT	5782 5810 5815 5852.5	FT DC FT FT	6300 6350 6355 6375	FT FT LP LP	6890 6935 7010 7120	DC DC DC DC	7810 8036.2 8171.25 8176.9
FT	4295 4315	FT	4852 4885	FT	5551.5	DC	5950	FT	6535	LP DC	7350 7362.5	DC DC	8525 8562.85

### MULTIMETER Model 200H 20,000 ohms per v. d.c. 10,000 ohms per v. a.c



A.c. volts: 0-10, 100, 500, 1,000 c. current 25 250 m A Resistance Capacity: gF. (at a.c. 5v. 0.0001 - 0.01 (at a.c. 250v.) db. plus 22 db Output range 0-10, 50, 100, 530, and Battery used: UM3 1.5v. 1 piece. Dimensions: 3% x

41/2 x 1-1/8 in.

Specifications:

Complete with internal battery, testing leads and prods.

Price £5/12/6 inc. tax. 1155 GENEMOTORS TYPE 34A Input 9.3v., output 225v. at 110 mA Complete with relays and filters, in

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DC 3515 FT 3555 FT 3535 DC 3560 FT 3536 DC 3562 DC 3537 FT 3564 FT 3534 FT 3573 DC 3547 FT 3575 FT 3549 FT 3580 FT 3552 FT 3587 DC 3552 FT 3587	DC 8333.3 = 50 Mc. DC 8383.3 = 50.3 Mc. DC 8400 = 50.4 Mc. DC 8416 = 50.5 Mc. DC 8450 = 50.7 Mc. DC 8483 = 50.9 Mc. DC 8500 = 51 Mc.	DC 8016 DC 8022.5 DC 8029.5 DC 8016.5 DC 8021.5 DC 8020.0 CR 8030.0 DC 8017 DC 8017.5 DC 8024.5 DC 8024.5 DC 8021.5 DC 8018.5 DC 8024.5 DC 8025.0 DC 8025.0 DC 8025.0 DC 8025.0 DC 8029.0 DC 8029.0 DC 8029.0 DC 8029.0 DC 8020.0
DC 0002 11 0000	144 Mc. Ham Band:	DC 8020.5 DC 8027 DC 8034
7 Mc. Ham Band:	DC 8000 DC 8014	DC 8021 DC 8027.5 DC 8034.5
0 11 10	DC 8010 DC 8014.5	DC 8021.5 DC 8028 DC 8035
Crystals of any	DC 8013 DC 8015	DC 8022 DC 8028.5 DC 8035.5
frequency, £2.	DC 8013.5 DC 8015.5	DC 8029

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P.V.C. insulation, 0.028. Red or white. 100 vd. Rolls, 10/- Roll.

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10,000 ohms/volt. Ranges-d.c. volts;

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120, 600, 1,200v. D.c. current: 60 μA,, 60 mA, 60 mA, 60 mA, 60 mk. Resistance: 10K, 100K, 1M, 10M ohms. Capacitance: 0,001-0.2 μβ, 0,0001-0.01 μF. Inductance: 30 3,000H. Decibels: -20 to +17 db. (0 db.-0.775v.-600 ohms). Dimensions: 4½" x 6½" x 9½". Weight: 1.3 lbs.

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